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NOTES ON THE DISTRIBUTION, ECOLOGY AND TAXONOMY OF THE PEACEFUL DOVE *GEOPELIA STRIATA* IN WESTERN AUSTRALIA

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ABSTRACT

Data on distribution, abundance, habitat, food, breeding, and colour of unfeathered parts are given for the Western Australian populations of *Geopelia striata*. Geographic variation is analysed (briefly also for eastern Australia and New Guinea). The Peaceful Dove is treated as conspecific with the Zebra Dove *G. s. striata*. Only one subspecies *G. s. placida* is recognised in Australia and New Guinea.

INTRODUCTION

All three geopelias inhabiting Australia, the Bar-shouldered, Peaceful and Diamond Doves are superficially similar in plumage, displays and calls, causing some field workers to wrongly identify them; even recent texts give erroneous distributions for Bar-shouldered and Peaceful Doves in Western Australia. In

many places the ranges of all three overlap, but their different habitat requirements and food preferences separate them ecologically.

The Peaceful Dove is widespread in eastern and northern Australia, but its range in Western Australia is fragmented. The paler colouration of birds from mid-Western Australia has led previous writers to treat them as a separate subspecies "*clelandi*". Recent collections from this area clarify the taxonomic status of western birds and show that most of the variation is of the checkerboard type, making it difficult to recognize subspecies.

I examined 318 *Geopelia striata* from Australia, New Guinea and south-east Asia held in the Western Australian, South Australian, Australian and Queensland Museums and Australian National Wildlife Collection. The length was measured of chord of flattened wing, tail to outer base of central rectrix, tarsus and entire culmen. Data on colour of unfeathered parts was collated and plumage colour was described.

RESULTS

Distribution

The Zebra/Peaceful Dove ranges from southern Burma, through the Sunda and Lesser Sunda Islands, Tanimbar and Kai Islands to southern New Guinea and western, northern and eastern Australia (Peters 1961).

In Western Australia the Peaceful Dove has a broken distribution with a population in the Kimberley and another in the north-west.

In the Kimberley it ranges south to Injudinah Swamp, Logues Springs, Noonkanbah, Cherrabun, McDonald Spring and Sturt Creek and to many continental islands: Sir Graham Moore, Middle Osborn, South-west Osborn, Carlia, Wollaston, East Montalivet, Bigge, South Maret, Boongaree, Coronation, Uwins, St Andrew, Augustus, Darcy, Heywood, Champagny, Koolan, Cockatoo and Sunday [see Storr (1980) and Figure 1].

There is a break of 230 km between the southernmost Kimberley records and the De Grey River. In the north-west, Peaceful Doves are restricted to the larger watercourses and range from the De Grey River south to the lower Murchison upstream to Nine Mile Pool and east to the lower Oakover and Davis Rivers, the Rudall, the upper Fortescue near Roy Hill and Newman, on the upper Ashburton to George Creek, on the Lyons river to 19 km NE of Minnie Creek HS, on the Gascoyne to the Great Northern Highway, to the upper Murchison from 9-26 km east of Beringarra [see Storr (1984, 1985) and Figure 1].

Status

In the Kimberley, Peaceful Doves are moderately common to very common, occurring in pairs, small parties and flocks of up to 100. In the north-west it is locally common but generally uncommon and patchily distributed, usually in pairs or small parties of up to 20 at feeding or watering sites.

Ecology

In the Kimberley this dove favours open wooded grasslands in the vicinity of water. They often congregate in burnt areas. In the Pilbara and Gascoyne it is



Figure 1: Map of northern Western Australia locating records of *Geopelia striata*.

restricted to riverine vegetation, mainly of *Melaleuca leucadendra*, *Eucalyptus camaldulensis* and palms around permanent pools on major water courses. On the lower Murchison they are found mainly in riverside vegetation of *Casuarina obesa* and *Acacia* spp. with scattered *E. camaldulensis*.

Peaceful Doves often feed quietly on the ground, especially bare areas such as river beds and banks and tracks and roads. They move slowly when feeding but are very agile and can run quickly. When flushed they rise rapidly and usually land in a nearby tree or return to the ground and continue feeding. They drink at least twice a day and often sunbathe on the ground with one wing lifted. Their call is a melodious "ollywattle" or "doodle-doo" and also a throaty "coo-coo", "coo-a-lac" and "kool".

Food

In Western Australia the main foods are seeds of grasses, e.g. *Cenchrus setigerus* (Birdwood Grass), *C. ciliaris* (Buffel Grass) (both introduced species), *Brachiaria*, *Echinochloa*, *Panicum* and *Setaria*. They also eat the seeds of *Cleome viscosa* (Tickweed), *Casuarina obesa*, *Sida*, *Sisymbrium*, *Cyperus*, *Amaranthus*, *Phyllanthus* (including *maderaspatensis*), *Euphorbia*, *Boerhavia* sp., *Senna*, *Citrullus*, *Medicago*, *Psoralea* and seeds of some Liliaceae. Length of seeds ranged from 0.6 to 7.7 mm.

Breeding

In Western Australia it breeds throughout the year with a peak between January and May. Fifty-seven two-egg clutches have been recorded for Western Australia in the following months: January (8), February (10), March (4), April (6), May (8), June (2), July (6), August (3), September (4), October (1), November (2) and December (3). They nest in *Terminalia*, *Eucalyptus* (including bloodwoods and mallees), *Lysiphylum*, *Acacia*, *Melaleuca*, *Ficus* and *Erythrophleum*.

Nests are flimsy platforms of sticks placed on horizontal or vertical forks or among tangles of broken branches and once on a sprouting stump. Most nests were from 1-4 m from the ground, but one was only 60 cm up and another 6 m up.

Two oval shaped white eggs form the clutch. A clutch of two eggs collected by I.C. Carnaby at Parrys Creek on 21 February, 1965 measured 20.9 x 16.7 mm and 22.2 x 16.7 mm and two eggs collected by N. Kolichis at Trent River on 15 May, 1980 measured 21.8 x 16.4 mm and 20.9 x 16.0 mm.

Unfeathered Parts

Data are available for 69 Western Australian specimens. Iris white (N 38), greyish-white (14), bluish-white (6), bluish-grey (3), cream (3), pale blue (3), grey (1) and pearl grey (1). Bill grey (N 45), blue-grey (9), light grey (6), greyish-black (4), brown (1), brownish-black (1) and black (1). Facial skin (orbital ring and lore) pale blue (N 22), bluish green (21), pale greenish-blue (9), blue (3), yellowish green (2) and yellow (1). Nostrils blue (N 22), powder blue (3), greenish-blue (1) and white (2). Legs purplish-brown or purplish-pink. Mouth pink, greyish-white or grey.

GEOGRAPHIC VARIATION

This subject is dealt with by comparing the more distinctive populations, beginning with those in the south.

1. Murchison River

Birds from the lower Murchison (estuary and near Galena) have the forehead pale grey, crown and nape pale greyish brown (with buff and brown bars on some specimens), neck, sides of neck and breast white, each feather with two (sometimes three) wavy blackish brown bars (thin on the breast and thicker on the hind neck), back and wing coverts pale greyish brown (some feathers with a rufous buff or greyish white band near tip, and most feathers tipped with black giving a scalloped effect), central tail feathers greyish-brown, primaries tinged rufous on the inner web, underwing coverts mostly chestnut, chin and throat whitish grey and lower breast and flanks pale brownish purple shading to creamy white on the belly. Overall they have a pale grey or greyish brown appearance.

There is a break of 300 km between populations of the lower and upper Murchison River. Birds from Beringarra on the upper Murchison are more reddish brown or reddish buff on the hind neck, back and wing coverts. The throat is white to buffy brown (pale grey in one specimen) with only a thin grey line under the eye. The breast barring is also less distinctive and is often broken in the centre of the breast with the pale brownish purple of the lower breast. These birds match best with populations further north (see below).

2. Gascoyne, Lyons and Minilya Rivers

Nearly all specimens are similar to Beringarra birds, being reddish brown on the upperparts or mixture of reddish brown and greyish brown feathers. The exceptions are a male A17474 from the middle Gascoyne and a male A17661 from the Minilya that are greyer on the upperparts, have darker barring on the hind neck and breast, and have a greyer throat and a stronger brownish purple suffusion on the lowest breast and flanks.

3. Ashburton River

An adult male A17849 from the lower Ashburton near Nanutarra, has the upperparts pale reddish brown and reddish buff and the throat buffy brown with no trace of grey. An adult female from the same locality is much greyer on the upperparts, has more blue grey on the forehead and has pale grey edging to the whitish throat.

All but two specimens from the upper Ashburton are greyish brown or brownish grey on the upperparts with only odd feathers having a rufous tinge, and they have the sides of the throat pale grey. The exceptions are a female A17846 from Moori Pool and a female A17841 from near the junction of the Angelo and Ashburton. These birds are reddish brown or reddish buff on the upperparts and match the reddish birds from the lower Ashburton, the Gascoyne and the upper Murchison.

4. Fortescue River

Fortescue birds are the reddest in Western Australia. They have the forehead pale grey, crown and nape pale reddish brown or pale greyish brown with indistinct (sometimes absent) brownish bars or scallops, neck and breast whitish buff [each feather with two (sometimes three) brown wavy bars], back and rump pale reddish brown, sometimes pale greyish brown with scattered reddish brown feathers (many feathers with a narrow black tip), wing coverts buffy brown, pale whitish grey or reddish brown tipped with black, primaries brown with narrow buff or reddish brown leading edge, central tail feathers greyish brown (often tinged reddish brown near tip), chin and throat brownish buff, whitish or whitish grey, lower breast and upper flanks white suffused with very pale brownish purple, and belly buff becoming rufous buff on lower flanks. I have not observed or collected any grey birds on the Fortescue. Birds from the Sherlock River and Whim Creek are similar to Fortescue birds but have a greyish tinge to the throat.

5. De Grey River

Most birds have greyish upperparts and thus contrast strongly with Fortescue birds. They have the forehead grey, crown and nape brownish grey or greyish brown, hindneck and breast with strong blackish brown bars, back, rump and wing coverts brownish grey to greyish brown (in some specimens odd feathers tinged reddish brown, and most feathers tipped black), central tail feathers dark greyish brown, throat pale grey or whitish, lower breast and upper flanks with a strong brownish purple suffusion, and lower flanks buff or reddish buff. Two specimens from Tooncoonaragee Pool on the Oakover River (a tributary of the De Grey) are more reddish brown on the upperparts than De Grey birds. The bird figured by Mathews (1910: 133) from the Coongan River (a tributary of the De Grey) is also more reddish on the back than De Grey specimens.

The palest birds from the De Grey drainage match specimens from the lower Murchison and upper Ashburton, and the darkest De Grey birds match those from southern Kimberley (Roebuck Plains and Logues Springs).

There is a break of 230 km between the De Grey and southern Kimberley populations. This break is formed by the virtual extension of the Great Sandy Desert to the sea and is probably the largest in the species' range anywhere in Australia.

6. Kimberley

All Kimberley birds have grey upperparts, and there is very little variation throughout the region. Many birds match well with the darker De Grey River specimens. A specimen from Moola Boola (A5809) is pale ash grey on the upperparts (like the palest De Grey birds and paler than south Kimberley specimens); some of its back feathers are tinged with reddish brown, and the belly and flanks are almost pure white with little brownish purple.

7. Northern Territory, Queensland, New South Wales, Victoria and South Australia

Distribution is continuous in northern and eastern Australia, and there is very little variation in coloration and size (Table 1). Specimens from the De Grey River and Kimberley, Western Australia, can be matched with those from the Northern Territory (including the Sir Edward Pellew Islands), New Guinea, Cape York, central Queensland, New South Wales, Victoria and north-eastern South Australia. There is however considerable individual variation in these regions, some birds being darker grey on the upperparts and having broader black edging to the feathers. Some South Australian specimens from Warburton River, Kalamurina and Port Germein have occasional back feathers tinged with reddish brown or reddish buff.

8. New Guinea

Most New Guinea birds are similar to those from north Queensland, but some are a little darker on the upperparts. A specimen from Port Moresby has strong chestnut on the inner web of the primaries.

TAXONOMY

Frith (1982) recognized three subspecies in Australia, namely *Geopelia striata placida* of northern Australia, *G. s. tranquilla* of south-eastern Australia and *G. s. clelandi* in north-west Australia. Mathews described *G. s. clelandi* (type from the Coongan River) as a pale form, with a buff sandy tone to the upperparts, not pure grey as in *placida*. Although some birds from the Oakover and Coongan Rivers are reddish buff on the upperparts, Mathews' description fits best with the pale reddish birds from the Fortescue, Ashburton and upper Murchison Rivers. As most De Grey River specimens match many Kimberley, Northern Territory and eastern Australian specimens it is difficult to recognize '*clelandi*'. The fact that both grey and reddish birds occur on the Ashburton, Minilya, Gascoyne and Murchison Rivers would also complicate matters. There is in fact more variation along some western rivers than in the rest of Australia, due no doubt to their small size and isolation.

Table 1: Measurements (mm) and weight (g) of *Geopelia striata*, with means in parentheses.

Population	Sex	No.	Wing	Tail	Tarsus	Entire Culmen	Total Length	Weight
Murchison River Western Australia	♂	9	96-105 (102)	85-100 (94)	14.0-17.0 (15.2)	14.0-17.5 (15.8)	195-228 (213)	43-56 (50)
	♀	4	96-105 (101)	86- 96 (91)	13.0-15.5 (14.6)	15.5-17.0 (16.2)	205-216 (213)	47-52 (49)
Gascoyne, Lyons and Minilya Rivers Western Australia	♂	7	102-108 (104)	94-110 (101)	15.0-18.0 (16.2)	15.0-17.0 (16.4)	217-232 (223)	45-54 (50)
	♀	6	91-104 (99)	89-102 (93)	15.0-18.0 (16.0)	16.0-17.5 (16.3)	208-215 (213)	45-53 (47)
Ashburton River Western Australia	♂	3	102-109 (105)	91- 99 (95)	15.0-16.0 (15.5)	16.0-17.5 (16.8)	218-227 (223)	48-52 (51)
	♀	10	97-109 (102)	90- 97 (93)	14.0-17.5 (15.1)	15.0-17.0 (16.0)	205-223 (215)	44-55 (50)
Fortescue River Western Australia	♂	8	97-105 (101)	89- 99 (92)	15.5-18.0 (16.5)	15.5-17.5 (16.5)	198-235 (216)	39-53 (47)
	♀	9	97-105 (100)	82- 96 (90)	15.0-17.0 (15.9)	16.0-17.0 (16.3)	202-216 (205)	38-48 (45)
De Grey River Western Australia	♂	7	97-101 (99)	90-100 (92)	15.0-17.0 (15.6)	15.0-17.0 (15.8)	206-221 (213)	39-50 (46)
	♀	3	98-103 (100)	89- 92 (91)	15.0-18.0 (16.6)	16.0	207-210 (209)	40-44 (41)
Kimberley Western Australia	♂	13	94-104 (99)	82-101 (91)	15.0-18.5 (17.0)	14.0-17.0 (15.8)	200-212 (207)	40-57 (49)
	♀	9	88-100 (96)	77- 97 (85)	14.0-16.0 (15.2)	14.0-16.0 (15.4)	180-202 (190)	38-48 (44)
Northern Territory	♂	24	92-101 (97)	83- 95 (90)	12.0-16.5 (15.1)	15.0-17.0 (15.8)	194-215 (202)	38-54 (45)
	♀	35	91-102 (96)	78- 95 (86)	14.0-16.0 (14.8)	14.0-17.5 (15.4)	194-210 (196)	37-50 (44)
Queensland	♂	19	97-108 (101)	82- 97 (92)	14.0-16.0 (15.2)	14.0-18.0 (16.2)	203-220 (209)	39-46 (43)
	♀	21	91-106 (99)	77- 98 (89)	13.0-16.5 (14.5)	14.5-16.5 (15.5)	196-218 (203)	41-58 (47)
New South Wales	♂	25	98-110 (104)	87-111 (97)	13.0-16.5 (15.1)	14.0-18.0 (16.0)	200-232 (220)	44-69 (58)
	♀	7	97-105 (102)	85- 98 (92)	14.0-16.0 (15.3)	15.5-16.0 (15.9)	218	53
Victoria and South Australia	♂	12	100-110 (106)	91-111 (100)	14.5-17.5 (15.7)	15.0-17.0 (16.2)	210-241 (223)	58
	♀	12	99-106 (103)	89-107 (96)	14.0-16.0 (15.2)	15.0-17.0 (15.9)	223	48
New Guinea	♂	18	94-103 (99)	80-100 (92)	14.0-17.0 (15.8)	15.0-17.5 (16.2)	150-175 (162)	40-55 (49)
	♀	11	95-101 (97)	84- 92 (88)	14.5-17.0 (15.6)	15.0-17.0 (16.0)	150-170 (160)	45-53 (49)

Under *G. s. tranquilla* Frith (1982) mentions that the boundary between *tranquilla* and *placida* is not well known. This is because there is very little variation throughout eastern Australia, and there are no breaks in its distribution. Frith also states that *placida* is darker and smaller than *tranquilla*; however Condon (1975) asserts the opposite. This gives some idea of the difficulties facing people trying to delineate boundaries between these so-called subspecies.

In summary I recognize only two subspecies in the Australian region: *G. s. placida* of Australia and New Guinea, and *G. s. maugaei* of the Lesser Sundas. The latter is large and strongly barred on the breast and flanks (4 bars rather than 3 on each feather) has no brownish purple suffusion to the breast and flanks, has extensive chestnut on the inner webs of primaries and secondaries and has yellow or orange facial skin. It is also noteworthy that *maugaei* of Sumbawa and Rinca Islands were attracted by and responded to taped calls of Australian *placida*.

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PLANTS COLLECTED BY J.A.L. PREISS FROM KINGS PARK IN 1839

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ABSTRACT

Johann August Ludwig Preiss was an important early plant collector in Western Australia. He documented his collecting localities with precision and recorded 22 species from Mt Eliza, Perth (now Kings Park) of which 12 were used by botanists to describe new species.